HAZARD RANKING SYSTEM DOCUMENTATION PACKAGE JACKSON STEEL MINEOLA/NORTH HEMPSTEAD, NASSAU COUNTY, NEW YORK

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Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Prepared by:

Region II Superfund Technical Assessment and Response Team

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SITE SUMMARY

The Jackson Steel site is an inactive "roll form metal shapes" manufacturing facility located at 435 First Street in Mineola/North Hempstead, Nassau County, New York (see Figure 1). It is not known when Jackson Steel Products, Inc. (Jackson Steel) began operating at the site; however, Jackson Steel submitted a form/application to the Nassau County Department of Health on 19 October 1977. Jackson Steel reportedly ceased operations at the site in April 1991. Degreasers, including tetrachloroethylene (also referred to as perchloroethylene [PCE]), trichloroethylene (TCE), and 1,1,1-trichloroethane (TCA), were used at the site until March 1985. Degreasing sludge was stored, in drums, on a paved area located southwest of the manufacturing facility. Two dry wells are located in the paved area located southwest of the building. The site property is bordered to the northwest by First Street, to the northeast by an apartment building, to the southeast by a billiard parlor and an electronics store, and to the southwest by a paved parking area, law offices, and a bar/restaurant (see Figure 2). The site is located on the edge of a mixed-usage area, with commercial and industrial properties located to the south and west and residential properties located to the north and east.

The Nassau County Department of Health (NCDH) conducted numerous inspections of the Jackson Steel site between 1979 and 1996; improper spill control at the waste storage area was noted once, in 1981, during the period when degreasers were used on site.

Geraghty & Miller, Inc. performed a Limited Phase II Assessment of the Jackson Steel site in December 1991. During this inspection, a third dry well was observed in the building, in the loading dock. Soil samples collected beneath the dry wells indicate the presence of PCE, TCE, 1,1,1-TCA, 1,2-dichloroethylene (DCE), and 1,1-dichloroethane (DCA) at depths up to 17 feet below the ground surface; 1,2-DCE is a degradation product of TCE and PCE and 1,1-DCA is a breakdown product of PCE, TCE, and 1,1,1-TCA.

Anson Environmental, Ltd. (Anson) conducted a reconnaissance of the site in November 1992, as part of an Environmental Site Investigation (ESI). Numerous stained areas and puddles were observed in the building. Drums, containing petroleum products, were stored in the building and on the paved area. The dry wells were reported to be partially filled with liquid and a 275-gallon degreasing tank was observed "in close proximity" to the dry well located in the loading dock. Between December 1992 and February 1993, numerous samples were collected from within, around, and below the dry wells. Six 60-foot monitoring wells were installed at the site; a total of nine ground water samples were collected at the site between January and February 1993. The analytical results reportedly indicate the presence of PCE, TCE, 1,1,1-TCA, and 1,2-DCE in soil at depths up to 40 feet below the ground surface and PCE, TCE, 1,1,1-TCA, 1,2-DCE, and 1,1-DCA in ground water collected from monitoring wells located downgradient of the dry wells.

The Jackson Steel site consists of one waste source: the PCE-, TCE-, and 1,1,1-TCA-contaminated dry wells. The Anson report suggests that a release of PCE, TCE, and 1,1,1-TCA to ground water has occurred from the site; however, the information currently available is not sufficient to document an observed release. Drinking water, within a 4-mile radius of the Jackson Steel site, is derived from public/municipal supply wells screened in the Upper Glacial, Magothy, and Lloyd aquifers. The Upper Glacial and Magothy aquifers are interconnected and evaluated as the aquifer of concern. The nearest well drawing from the aquifer of concern is located approximately 1,670 feet east-southeast and side-gradient to the site. Over 300,000 people obtain drinking water from potable wells located within 4 miles of the site, and drawing from the aquifer of concern.

HRS DOCUMENTATION RECORD--REVIEW COVER SHEET

Name of Site: Jackson Steel

Contact Persons

Site Investigation: Hayden Brewster (518) 457-0639

New York State Department of Environmental

Conservation Albany, NY

Documentation Record: Ben Conetta (212) 637-4435

U.S. Environmental Protection Agency

New York, NY

Diane D. Minsavage (732) 225-6116 Region II START **j** Roy F. Weston, Inc.

Edison, NJ

Pathways, Components, or Threats Not Evaluated

The Surface Water, Soil Exposure, and Air Pathways were not scored because the site score would not be significantly impacted by those pathways.

HRS DOCUMENTATION RECORD

Name of Site: Jackson Steel

EPA Region: 2 Date Prepared: October 1999

Street Address of Site: 435 First Street, Mineola/North Hempstead

County and State: Nassau, NY

General Location in the State: Western Long Island

Topographic Map: Lynbrook, N.Y., quadrangle, 1969

Latitude: 40E 44' 19.7" North Longitude: 73E 39' 09.7" West

(Refs. 11, Figure 1; 20; Figure 3)

EPA ID No.: NYD001344456

(Ref. 3)

Scores

Ground Water Pathway 100.00
Surface Water Pathway Not Scored
Soil Exposure Pathway Not Scored
Air Pathway Not Scored

HRS SITE SCORE 50.00

WORKSHEET FOR COMPUTING HRS SITE SCORE

		<u>S</u>	S ²
1.	Ground Water Migration Pathway Score ($S_{\rm gw}$) (from Table 3-1, line 13)	100.00	10000.00
2a.	Surface Water Overland/Flood Migration Component (from Table 4-1, line 30)	Not Scored	
2b.	Ground Water to Surface Water Migration Component (from Table 4-25, line 28)	Not Scored	
2c.	Surface Water Migration Pathway Score (S_{sw}) Enter the larger of lines 2a and 2b as the pathway score.	Not Scored	
3.	Soil Exposure Pathway Score (S_s) (from Table 5-1, line 22)	Not Scored	
4.	Air Migration Pathway Score (S_a) (from Table 6-1, line 12)	Not Scored	
5.	Total of S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2	10000.00	
6.	HRS Site Score Divide the value on line 5 by 4 and take the square root	<u>50.00</u>	

PREScore 4.1 GROUND WATER MIGRATION PATHWAY SCORESHEET

GROUND WATER MIGRATION PATHWAY Factor Categories & Factors	MAXIMUM VALUE	VALUE ASSIGNED
Likelihood of Release to an Aquifer Aquifer: GLACIAL/MAGOTHY		
1. Observed Release 2. Potential to Release	550	0
2a. Containment	10	1.0
2b. Net Precipitation	10	6
2c. Depth to Aquifer	5	3
2d. Travel Time	35	35
2e. Potential to Release		
[lines 2a (2b+2c+2d)]	500	440
3. Likelihood of Release	550	440
Waste Characteristics		
4. Toxicity/Mobility	*	1.00E+02
5. Hazardous Waste Quantity	*	10
6. Waste Characteristics	100	6
Targets		
7. Nearest Well	50	1.80E+01
8. Population 8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00 0.00E+00
8c. Potential Contamination	**	5.21E+03
8d. Population (lines 8a+8b+8c)	**	5.21E+03
9. Resources	5	0.00E+00
10. Wellhead Protection Area	20	2.00E+01
11. Targets (lines 7+8d+9+10)	**	5.25E+03
12. Targets (including overlaying aquifers)	**	5.25E+03
13. Aquifer Score	100	100
	100	100
GROUND WATER MIGRATION PATHWAY SCORE (Sgw)	100	100

^{*} Maximum value applies to waste characteristics category.

^{**} Maximum value not applicable

REFERENCES

Reference

<u>Number</u> <u>Description of the Reference</u>

- U.S. Environmental Protection Agency (USEPA), <u>Revised Hazard Ranking</u>
 <u>System, Final Rule</u>, 40 CFR 300, Appendix A, December 14, 1990.(see 55 FR
 51532, December 14, 1990) [12 pp.]
- 2. USEPA, <u>Superfund Chemical Data Matrix</u>, <u>SCDM Data Version</u>: <u>JUN96</u>. [5 pp.]
- 3. EPA Form 8700-12 (6-80), <u>Notification of Hazardous Waste Activity</u>, Jackson Steel Products, Inc., March 12, 1981. [4 pp.]
- Minsavage, D., Region II START, <u>Project Note to Jackson Steel file, Subject: Compilation of Semi-Annual Waste and Chemical/Solvent Waste Reports</u>, August 16, 1999. [28 pp.]
- 5. New York Department of Environmental Conservation (NYSDEC) Transmittal Slip from Hayden Brewster, Division of Environmental Remediation/Bureau of Hazardous Site Control/Eastern Investigation Section, to Diane Minsavage, Roy F. Weston, Inc., Federal Programs Division, Subject: Jackson Steel {Site No. 130095}, June 11, 1999. [27 pp.]
- 6. Anson Environmental Ltd., <u>Environmental Site Investigation</u>, <u>Jackson Steel Products</u>, <u>Inc.</u> (minus Exhibits II and III), prepared for Farrel, Fritz, Caemmerer, Cleary, Barnosky, & Armentano, P.C., December 1992. [10 pp.]
- 7. Anson Environmental Ltd., <u>Environmental Site Investigation; Delineation of Extent of Contamination and Remediation Cost Estimate</u>, <u>Jackson Steel Products</u>, <u>Inc.</u>, <u>January 1992</u>. [27 pp.]
- 8. Minsavage, D., Region II START, <u>Project Note to Jackson Steel file, Subject: Assorted information related to the Jackson Steel site</u>, August 25, 1999. [11 pp.]
- Minsavage, D., Region II START, <u>Project Note to Jackson Steel file, Subject: Compilation of Applications and Permits</u>, August 16, 1999. [34 pp.]
- 10. Minsavage, D., Region II START, <u>Project Note to Jackson Steel file, Subject: Compilation Inspection Reports</u>, August 26, 1999. [33 pp.]
- 11. Field Record Book, Roy F. Weston, Inc. Region II START, Jackson Steel, Document Control No. START-02-407, 16 August 1999 [18 pp, plus one oversized map].

REFERENCES (continued)

- 12. Suter, R., W. de Laguna, and N.M. Perlmutter, 1949, <u>Mapping of Geologic Formations and Aquifers of Long Island, New York</u>, State of New York Department of Conservation, Water Power and Control Commission, Bulletin GW-18, excerpts. [59 pp.]
- 13. McClymonds, N.E. and O.L. Franke, U.S. Geological Survey (USGS), 1972, <u>Water-Transmitting Properties of Aquifers on Long Island, New York,</u> Geological Survey Professional Paper 627-E. [24 pp.]
- 14. Getzen, R.T., USGS, 1977, <u>Analog-Model Analysis of Regional Three-Dimensional Flow in the Ground-Water Reservoir of Long Island, New York</u>, Geological Survey Professional Paper 982. [49 pp.]
- 15. Nassau County Department of Health, July 1996, <u>Ground Water and Public Water Supply Facts for Nassau County, New York</u>. [73 pp.]
- 16. Gilliland, G., START, December 17, 1998, <u>Project Note to Stanton Cleaners file, RE: Conversion of Hydraulic Conductivity Values</u>. [3 pp.]
- 17. Spinello, A.G. et al, USGS Water Resources Division, <u>Water Resources Data</u>, <u>New York</u>, <u>Water Year 1996</u>, <u>Volume 2</u>. <u>Long Island</u>, USGS Water-Data Report NY-96-2, excerpts, May 1997. [9 pp.]
- 18. Kilburn, C., USGS, 1979, <u>Hydrogeology of the Town of North Hempstead</u>, <u>Nassau County, Long Island</u>, <u>New York</u>, Long Island Water Resources Bulletin GW-18. [87 pp. plus 4 plates (one oversized)]
- 19. Busciolano, R., Monti, J. Jr, and Chu, A., USGS, 1999, <u>Water-Table and Potentiometric-Surface Altitudes of the Upper Glacial, Magothy, and Lloyd Aquifers on Long Island, New York, in March-April, 1997, with a Summary of Hydrogeologic Conditions, USGS Water-Resources Investigations Report 98-4019, excerpts. [4 pp. plus 2 oversized plates]</u>
- 20. Minsavage, D., Region II START, <u>Project Note to Jackson Steel file, Subject: Latitude and Longitude Calculations</u>, August 20, 1999. [1 p. and 1 topographic map]
- 21. Minsavage, D., Region II START, <u>Project Note to Jackson Steel file, Subject: Ground Water Population Calculation</u>, August 27, 1999, revised 4 October 1999. [82 pp. plus one oversized map]
- 22. Minsavage, D., Region II START, <u>Project Note to Jackson Steel file, Subject: Wellhead Protection Area</u>, August 25, 1999. [51 pp.]

REFERENCES (continued)

23. USEPA, Hazard Ranking System Guidance Manual, Publication 9345.1-07, PB92-963377, EPA-R-92-026, Interim Final, November 1992. (2 pp.)

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 1

Name and description of the source:

PCE-, TCE-, and 1,1,1-TCA-Contaminated Dry Wells (Other)

Source 1 consist of PCE-, TCE- and 1,1,1-TCA-contaminated dry wells (Refs. 5, pp. 6, 11, 13, 22 through 24; 7, pp. 2 through 5, 13, 16, 17, 22, 25; 8, pp. 2, 4). Although no historical information is available regarding the use of the dry wells, Jackson Steel Products, Inc. used PCE, TCE, 1,1,1-TCA, and Pasley Solvents degreaser blend No. 205 (which also contained PCE) at the site until 1985 (Refs. 4, pp. 2 through 28; 9, pp. 3, 21, 23; 10, pp. 2, 4, 5, 7 through 20). Degreaser sludge was stored outside the building, on a paved area located along the southeastern property boundary (Ref. 9, pp. 1, 20). Two dry wells are located in the paved area located in the southwestern portion of the property; one additional dry well was located inside the building, in the loading dock area (Refs. 5, pp. 6, 13; 6, p. 22; 10, p. 33). Geraghty and Miller performed a Limited Phase II Assessment of the former Jackson Steel Products, Inc. facility in December 1991 (Ref. 5, pp. 2, 5, 6). During this assessment, five soil borings were installed at the site; one boring was installed in the center of each of the dry wells (Ref. 5, p. 6). Analytical results from soil samples collected from the dry wells indicate the presence of PCE at concentrations up to 2,300,000 micrograms per kilogram (Fg/kg), TCE at concentrations up to 410,000 Fg/kg, 1,1,1-TCA at concentrations up to 110,000 Fg/kg, 1,2-DCE at concentrations up to 210,000 Fg/kg, and 1,1-DCA at concentrations up to 10,000 Fg/kg (Ref. 5, pp. 6, 11, 13, 22 through 24). PCE, TCE, 1,1,1-TCA, 1,2-DCE, and 1,1-DCA were detected at depths up to 17 feet below ground surface (Ref. 5, pp. 2, 6, 11, 13, 15 through 17, 22 through 24).

Anson Environmental Ltd. (Anson) conducted an Environmental Site Investigation/Phase II Investigation at the site between December 1992 and February 1993 (Refs. 7, pp. 1 through 9; 10, pp. 1, 9 through 11). One sediment sample and one liquid sample were collected from each of the dry wells in December 1992 (Ref. 7, pp. 2, 13). 1,1,1-TCA, 1,2-DCA, 1,1-DCE, 1,1-DCA, and chloroethane were detected (reportedly at 1,000 parts per million [ppm], 1,000 ppm, 3,000 ppm, 7,000 ppm, and 17,000 ppm, respectively) in the liquid sample collected from the dry well located nearest to the degreasing sludge storage area (Refs. 7, pp. 13, 22; 9, pp. 1, 20). In January 1993, Anson collected two soil samples from each of the dry wells and a total of seven soil samples from locations adjacent to the dry wells (Ref. 7, pp. 3 through 5, 16, 17, 25). VOCs were reportedly detected in soil samples collected beneath two of the dry wells; PCE at concentrations up to 4,800,000 ppm, TCE at concentrations up to 530,000 ppm, and 1,2-DCE at concentrations up to 160,000 ppm (Ref. 7, pp. 16, 17, 25). These chlorinated volatile organic compounds were reportedly detected at depths up to 8 feet below the top of the dry well sediments (Ref 7, pp. 4, 5, 16, 17). Anson installed three 60-foot monitoring wells on-site on 13 and 15 of January, 1993: monitoring well MW-1 was installed near the north-

SOURCE DESCRIPTION (continued)

2.2 SOURCE CHARACTERIZATION (continued)

western corner of the property; monitoring well MW-2 was installed in paved area located southwest of the building; and monitoring well MW-3 was installed in the building (Refs. 7, pp. 9, 26, 27; 8, pp. 6 through 8). Ground water samples were collected from the monitoring wells; analytical results reportedly indicated the presence of PCE at concentrations ranging from 25 to 970 parts per billion (ppb), TCE at concentrations ranging from non-detect to 76 ppb, 1,1,1-TCA at concentrations ranging from 1 to 96 ppb, and 1,2-DCE at concentrations ranging from non-detect to 92 ppb (Ref. 7, p. 20).

Six soil samples were collected beneath dry well No. 2, at depths ranging up to 40 feet below the ground surface (Ref. 8, p. 2). PCE, TCE, 1,1,1-TCA, and 1,2-DCE were reportedly detected in all of the soil samples; these compounds were reportedly detected at concentrations as high as 28,000 ppm, 6,900 ppm, 950 ppm, and 1,300 ppm, respectively (Ref. 8, p. 2). Subsequently, Anson installed three additional 60-foot monitoring wells on-site: monitoring wells MW-4 and MW-5 were installed in the paved area located southwest of the building; and monitoring well MW-6 was installed inside the building (Ref. 8, pp. 5, 9 through 11). Ground water samples were collected from the six on-site monitoring wells on 10 February 1993 (Ref 8, p. 3). The reported analytical results indicate PCE was detected in ground water collected from all of the monitoring wells, at concentrations ranging from 22 ppb to 1,600 ppb (Ref 8, p. 3). TCE and 1,1,1-TCA were reportedly detected in five of the groundwater samples at concentrations as high as 920 ppb and 180 ppb, respectively; TCE and 1,1,1-TCA were reportedly not detected in the ground water sample collected from monitoring well MW-1 (Ref. 8, p. 3).

The highest concentrations of substances attributable to site activities were reportedly detected in ground water collected from monitoring wells MW-4 and MW-5, located downgradient of the dry wells located in the paved area southwest of the building (Ref. 8, p. 5). Based on the location of these wells with respect to the PCE-, TCE- and 1,1,1-TCA-contaminated soil, and the elevated concentrations as compared to the reported background concentrations of 2, 22, and 2 ppb, respectively, it is likely that the Jackson Steel site has contributed to ground water contamination in the area (Refs. 5, pp. 6, 11, 13, 22, 23; 7, pp. 2 through 5, 13, 16, 1725; 8, pp. 3, 5).

Location of the source, with reference to a map of the site:

The dry wells are located at 435 First Street (Refs. 3, p. 1; 5, pp. 2, 13; 7, pp. 1, 22; 11, pp. 7, 10 through 14). The complete lateral and vertical extent of the contamination associated with the dry wells is unknown. Reference 5, pp. 6, 11, 13, 15 through 17, 22 through 24 present the locations, depths, and PCE, TCE, and 1,1,1-TCA concentrations detected in samples collected beneath the dry wells during the Limited Phase II Assessment; References 7, pp. 2 through 6, 13, 16, 17, 25; 8, pp. 2, 4, 5 present the reported locations, depths, and PCE, TCE, and 1,1,1-TCA concentrations detected in samples collected within, beneath, or in the vicinity of the dry wells during the subsequent investigations.

Containment

Release to ground water:

Analytical results for soil samples collected during the Limited Phase II Assessment indicate PCE, TCE, DCE, 1,1,1-TCA, and DCA have migrated at least 4 feet below the bottom of the dry wells (Ref. 5, pp. 5, 6, 11, 22 through 24). Additionally, samples collected during the Environmental Site Investigation reportedly indicate PCE, TCE, and DCE were detected 8 feet below the bottom of the dry wells and PCE and TCE were detected in "perimeter samples" collected from 19 to 21 feet below the ground surface (Ref. 7, pp. 1, 3, 16, 17, 25). Samples collected beneath dry well No. 2 reportedly indicated the presence of PCE, TCE, 1,1,1-TCA, and DCE at depths up to 40 feet below the ground surface (Ref. 8, pp. 2, 4). PCE, TCE, 1,1,1-TCA, and DCE were also reportedly detected in ground water; the highest concentrations were reportedly detected in the samples collected from the monitoring wells MW-4 and MW-5, located downgradient of two of the dry wells (Ref. 8, pp. 3, 5). Numerous soil borings completed in the dry wells show no evidence of a liner. No containment of any kind is known to have been used nor has any been observed at this source (Ref. 11, pp. 10, 11). The source consists of dry wells; the dry wells are covered by metal grates and act as collection basins/leaching pools for runoff from the site (Ref. 11, p. 11). Therefore, since there is an absence of a liner, no cover on the source, a run-on control/runoff management system is not present and the fact that there is evidence of hazardous substance migration, the containment factor for the ground water pathway is 10 (Ref. 1, p. 51596).

2.4.1 <u>Hazardous Substances</u>

Hazardous <u>Substance</u>	Evidence*	<u>Reference</u>
	Limited Phase II sampling results 4 December 1991:	
PCE (max. conc. [2,300,000 Fg/kg, SD-2 (15 - 17)]		5, pp. 11, 22 5, pp. 11, 23 5, pp. 11, 17, 24
TCE (max. conc. [410,000 Fg/kg, SD-2 (15 - 17)]		5, pp. 11, 22 5, pp. 11, 23 5, pp. 11, 17, 24
1,1,1-TCA (max. conc. [360,000 Fg/kg, SD-1 (13 - 15)]	SD-2 (15 - 17)	5, pp. 11, 22 5, pp. 11, 23 5, pp. 11, 17, 24

The soil samples cited above were collected directly beneath the dry wells; therefore, the samples characterize the contaminants which were present in the dry wells.

^{*} The soil sample locations are presented in Reference 5, Figure 2 (p. 13). Numbers in parentheses show the sample interval, in feet, below the ground surface.

2.4.2 <u>Hazardous Waste Quantity</u>

2.4.2.1.1 <u>Hazardous Constituent Quantity</u>

The information available is not sufficient to evaluate Tier A source hazardous waste quantity; therefore, hazardous waste constituent is not scored (NS).

Hazardous Constituent Quantity Value (S): NS

2.4.2.1.2 <u>Hazardous Wastestream Quantity</u>

The information available is not sufficient to evaluate $Tier\ B$ source hazardous waste quantity.

Hazardous Wastestream Quantity Value (W): NS

2.4.2.1.3 <u>Volume</u>

The dimensions of the dry wells are not known. However, based on analytical results of soil samples collected during the Limited Phase II Assessment in December 1991, it is apparent that some amount of contamination is present. Since the exact volume is unknown a source waste quantity of >0 will therefore be assigned.

The Hazardous Waste Quantity (HWQ) value was determined as follows, as stated in Table 2-5 of the HRS Rule:

Volume of the dry wells (yd³) / 2.5 = HWQ $\label{eq:hwq} \text{HWQ} = >0 \text{ / 2.5} = >0$

Dimension of source (yd^3) : >0

Volume Assigned Value: >0

Reference(s): 1, p. 51591; 5, pp. 6, 11, 13, 22 through 24

2.4.2.1.4 <u>Area</u>

Since the volume of the waste source can be determined, a value of ${\tt 0}$ is given for area measurement.

Area of source (ft²): 0

Area Assigned Value: 0

Reference(s): 1, p. 51591

2.4.2.1.5 <u>Source Hazardous Waste Quantity Value</u>

Based on analytical results of soil samples collected during the Limited Phase II Assessment in December 1991, it is apparent that some amount of contamination is present; however, the exact volume is unknown. A source waste quantity of >0 will therefore be assigned.

Source Hazardous Waste Quantity Value: >0

Reference(s): 1, p. 51591; 5, pp. 6, 11, 13, 22 through 24

SITE SUMMARY OF SOURCE DESCRIPTIONS

			Containment		
Source <u>Number</u>	Source Hazardous Waste Quantity Value	Ground <u>Water</u>	Surface <u>Water</u>	A <u>Gas</u>	ir <u>Particulate</u>
1	>0	10	${ m NS}^1$	NS	NS
_	Sum of values: >0				

Therefore, based on Table 2-6, the hazardous waste quantity factor value assigned for the site is 1 (Ref 1, pp. 51591, 51592).

 NS^1 = Not Scored

3.0 GROUND WATER MIGRATION PATHWAY

3.0.1 <u>General Considerations</u>

The aquifer of concern is referred to in this report as the combined Upper Glacial/Magothy aquifer. It consists of the Upper Glacial and Magothy aquifers that underlie most of Long Island, including the site vicinity (Figure 3; Ref. 12, pp. 19, 20, 24; 13, pp. E4, E5, E6). Ground water is the only source of water supply in Nassau County (Ref. 14, p. 1). Most of the public supply wells in the county withdraw water from the Glacial, Magothy, and Lloyd aquifers (Ref. 15, pp. 15 through 24).

The Jackson Steel site is located within the outwash area; the outwash area is underlain by deposits that have a high permeability, which allow precipitation to percolate downward with relative ease to the water table and thence to the underlying aquifers (Ref. 18, p. 30, plate 1). The Upper Glacial aquifer directly overlies the Magothy in the site vicinity (Refs. 13, p. E4; 15, pp. 9, 14; 18, p. 17, plates 2, 4), and the average hydraulic conductivities of the two aquifers are 8.02 x 10⁻² centimeters per second (cm/s) and 1.98 x 10⁻² cm/s, respectively (Refs. 13, p. E23; 17, p. 1). Based on those values, the aquifers are considered to be hydraulically interconnected and are evaluated as a single hydrologic unit (i.e., the aquifer of concern) for HRS scoring purposes (Ref. 1, pp. 51553, 51595). The deeper Lloyd aquifer is separated from the overlying aquifer system by the Raritan Clay, a continuous confining layer found in the entire 4-mile radius (Refs. 12, p. 16, plate XIV; 13, pp. E4, E6; 18, pp. 18, 19).

The total thickness of the formations comprising the Upper Glacial/Magothy aquifer is approximately 524 feet in the site vicinity (Refs. 12, p. 106, plate V; 18, pp. 21, 32). The water table occurs in the surficial Upper Glacial aquifer and there are no continuous confining layers between the two units (Ref. 13, p. E4). The water table is generally encountered at approximately 50 feet below the ground surface (at 50 feet above mean sea level) in the vicinity of the Jackson Steel site (Figure 3; Refs. 18, pp. 32, 33; 19, plates 1A, 2A). The water table has varied from 40.22 to 52.58 feet below ground level (48.42 and 60.78 feet above mean sea level), between April 1966 and September 1996, in an observation well (N1614.4) located approximately 3,100 feet north-northwest of the site (Figure 3; Ref. 17, p. 117). Ground water flows in a southwesterly direction in the area of the Jackson Steel site (Refs. 7, p. 26; 8, p. 5; 19, plates 1A, 2A).

Aquifer/Stratum 1 (shallowest)

Stratum Name: Upper Glacial aquifer

<u>Description</u>: The Pleistocene-age Upper Glacial aquifer consists primarily of glaciofluvial and glaciodeltaic sand and gravel. This geologic unit also contains tills and glaciolacustrine clays (Ref. 14, pp. 8, 10). The approximate thickness of Pleistocene deposits in the site vicinity is 85 feet (Refs. 12, p. 106, plate V: 19, p. 32). The Glacial aquifer is used for public water supplies in the site vicinity (Figure 3; Ref. 9, pp. 12, 18, 19, 20).

Aquifer/Stratum 2

Stratum Name: Magothy aquifer

<u>Description</u>: The Cretaceous-age Magothy aquifer consists of fine to medium sand interbedded with clay and sandy or silty clay. The sand beds are generally less than 47 feet thick, but there are interbedded sandy zones that exceed 160 feet (Ref. 14, p. 7). Review of a well log for a well in the site vicinity (i.e., well 1697) indicates that the Magothy aquifer is approximately 439 feet thick in the area of the site (Ref. 12, p. 106, plate V). A majority of the public supply wells in Nassau County withdraw water from this aquifer (Ref. 15, pp. 15 through 24).

Aquifer/Stratum 3

<u>Aquifer/Stratum Name</u>: Raritan Clay (aquiclude)

<u>Description:</u> The Raritan Clay consists of solid, silty clay with few lenses of sand and little gravel (Ref. 13, p. E6). Review of a well log for a well in the site vicinity (i.e., well 1697) indicates that the Raritan Clay is over 78 feet thick in the area of the site (Ref. 13, p. 106, plate V). It has a low hydraulic conductivity and acts as a confining layer to separate the Magothy and Lloyd aquifers (Ref. 14, p. 7).

Aquifer/Stratum 4

<u>Aquifer/Stratum Name</u>: Lloyd aquifer

<u>Description:</u> The Lloyd sand member of the Cretaceous-age Raritan Formation makes up the Lloyd aquifer. It consists of fine to coarse sand and gravel in a clayey matrix (Ref. 13, p. E6). The Lloyd aquifer is approximately 170 feet thick in the area of the site (Ref. 18, p. 15, plate 2). The unit directly overlies the bedrock and is confined by the Raritan Clay (Ref. 13, p. E6; 14, p. 7). The Lloyd aquifer is used for public water supplies in the site vicinity (Figure 3; Ref. 15, pp. 12, 18, 19, 20, 24).

3.1.2.1 Containment

<u>Source</u>	<u>Descriptor</u>	<u>Value</u>
1	Evidence of hazardous substance migration from the source area; no liner; no cover, no run-on control	10
	and runoff management system	

Based on analytical results of soil samples collected during the Limited Phase II Assessment in December 1991, it is apparent that some amount of contamination is present (Ref. 5, pp.6, 11, 13, 22 to 24). Subsequent investigations have indicated hazardous substance migration from the source area (Ref. 8, pp. 2 through 5, 9, 16, 17, 25; 8, pp. 2, 5). No containment of any kind is known to have been used nor has any been observed at this source. The source consists of dry wells; the dry wells are covered by metal grates and act as collection basins/leaching pools for runoff from the site (Ref. 11, p. 11). The available documentation does not indicate that there is a liner beneath the source, a cover on the source, nor run-on control/runoff management system is present; therefore, a Containment Factor Value of 10 is assigned (Ref. 1, pp. 51596).

3.1.2.2 Net Precipitation

The net precipitation factor for the Jackson Steel site was obtained from Figure 3-2 in the HRS Rule (Ref. 1, p. 51598). This figure indicates that all of Long Island receives a net precipitation factor value of 6 (Ref. 1, p. 51598).

Factor Value: 6

<u>Reference</u>: 1, p. 51598

3.1.2.3 Depth to Aquifer

The water table is generally encountered at approximately 50 feet below the ground surface (at 50 feet above mean sea level) in the vicinity of the Jackson Steel site (Figure 3; Refs. 18, pp. 32, 33; 19, plates 1A, 2A). Between April 1966 and September 1996, the water table has varied from 40.22 to 52.58 feet below ground level (48.42 to 60.78 feet above sea level), in an observation well (N1614.4) located approximately 3,100 feet north-northwest of the site (Figure 3; Ref. 17, p. 117). PCE, TCE, DCE, TCA, and DCA were detected in samples collected from the dry wells at depths up to 17 feet below the ground surface during the Limited Phase II Assessment (Ref. 5, pp. 6, 11, 13, 15, 16, 22, 23). Therefore, the distance between the lowest known point of hazardous substances at the site and the top of the aquifer being evaluated ranges from 23.22 to 35.58 feet. The depth to aquifer factor value for the Jackson Steel site was obtained from Table 3-5 (Ref. 1, p. 51600). Since the depth to the aquifer is less than 250 feet, a factor value of 3 is assigned (Ref. 1, p. 51600).

Net Precipitation Factor Value: 6
Depth to Aquifer Factor Value: 3

3.1.2.4 Travel Time

As noted previously, the water table has varied from 40.22 to 52.58 feet below ground level (48.42 to 60.78 feet above mean sea level), between April 1966 and September 1996, in an observation well (N1614.4) located approximately 3,100 feet north-northwest of the Jackson Steel site (Ref. 17, p. 117). PCE, TCE, DCE, TCA, and DCA were detected in samples collected from the dry wells at depths up to 17 feet below the ground surface during the Limited Phase II Assessment (Ref. 5, pp. 6, 11, 13, 15, 16, 22, 23). The unsaturated portion of the Glacial Formation extends from the ground surface to the top of the water table. Therefore, the distance between the lowest known point of hazardous substances at the site and the top of the aquifer being evaluated ranges from 23.22 to 35.58 feet. The average hydraulic conductivity of the Upper Glacial Aquifer is 8.02×10^{-2} centimeter/second (cm/s)(Ref. 16, p. 1). The travel time factor value for the Jackson Steel site was obtained from Table 3-7 (Ref. 1, p. 51601). Since the intervening layer is greater than 5 but less than 100 feet thick and the hydraulic conductivity is greater than or equal to 10^{-3} , a factor value of 35 is assigned (Ref. 1, pp. 51600, 51601).

3.2 WASTE CHARACTERISTICS

3.2.1 <u>Toxicity/Mobility</u>

Hazardous <u>Substance</u>	Source No.	Toxicity Factor Value	Mobility Factor Value	Toxicity/ Mobility	Referenc	<u>!e</u>
PCE	1	100	1	100	1, 51601; p. B-18	p. 2,
TCE	1	10	1	10	1, 51601; p. B-19	p. 2,
1,1,1-TCA	1	1	1	1	1, 51601; p. B-19	p. 2,

3.2.2 <u>Hazardous Waste Quantity</u>

Source Hazardous Is source hazardous constituent quantity

Source Number Value (Section 2.4.2.1.5) data complete? (yes/no)

1 >0 No

Sum of Values: 10

The ground water pathway targets are not subject to Level I or Level II concentrations and there has been no removal action. Therefore, either the hazardous waste factor value, as determined in section 2.4.2.2 of the Documentation Record, or the value of 10, whichever is greater, is assigned as the hazardous waste quantity factor value for the ground water pathway. Thus, the hazardous waste quantity factor value for the ground water pathway is 10 (Ref. 1, p. 51592).

3.2.3 Waste Characteristics Factor Category Value

Toxicity/Mobility Factor Value (100) x Hazardous Waste Quantity Factor Value (10): 1×10^3

The product 1×10^3 corresponds to a waste characteristics factor category value of 6 in Table 2-7 of the HRS rule (Ref. 1, pp. 51592).

Hazardous Waste Quantity Factor Value: 10 Waste Characteristics Factor Category Value: 6

3.3 TARGETS

The wells listed below consists of public supply wells which are located within 4 miles of the site and draw from the aquifer of concern (i.e., the Upper Glacial/Magothy aquifer). Please refer to Figure 3 for the locations of these public supply wells.

<u>Well</u>	Distance From Source*	Contam. <u>Aquifer**</u>	Level I Contam.	Level II Contam. (Y/N)	Potential Contam. (Y/N)	Reference***
M-4	0.32 miles	UPGL/MAG	N	N	Y	21, pp. 4,
GV-12	0.36 mile	UPGL/MAG	N	N	Y	49, 82 21, pp. 2,
GV-8	0.63 mile	UPGL/MAG	N	N	Y	23, 25 21, pp. 2, 22, 25
GV-7	0.80 mile	UPGL/MAG	N	N	Y	21, pp. 2, 22, 25
M-7	0.93 mile	UPGL/MAG	N	N	Y	21, pp. 4, 49
M-1	0.99 mile	UPGL/MAG	N	N	Y	21, pp. 4,
WN-20	1.16 miles	UPGL/MAG	N	N	Y	21, pp. 5, 57
WP-4	1.40 miles	UPGL/MAG	N	N	Y	21, pp. 6,
GV-13	1.46 miles	UPGL/MAG	N	N	Y	21, pp. 2, 23, 25
GV-14	1.46 miles	UPGL/MAG	N	N	Y	21, pp. 2, 23, 25
GP-6	1.58 miles	UPGL/MAG	N	N	Y	21, pp. 2, 19, fig. 1
M-6	1.70 miles	UPGL/MAG	N	N	Y	21, pp. 4,
GV-10	1.82 miles	UPGL/MAG	N	N	Y	21, pp. 2, 22, 25
GV-11	1.82 miles	UPGL/MAG	N	N	Y	21, pp. 2, 23, 25
M-5	1.87 miles	UPGL/MAG	N	N	Y	21, pp. 4,
WP-1	1.88 miles	UPGL/MAG	N	N	Y	21, pp. 6, 61
GP-7	1.95 miles	UPGL/MAG	N	N	Y	21, pp. 2, 19, fig. 1
GP-10	1.95 miles	UPGL/MAG	N	N	Y	21, pp. 2, 19, fig. 1
WN-57	2.03 miles	UPGL/MAG	N	N	Y	21, pp. 5, 55, 57
WN-57A	2.03 miles	UPGL/MAG	N	N	Y	21, pp. 5, 55, 57
FS-1	2.04 miles	UPGL/MAG	N	N	Y	21, pp. 2, 16

<u>Well</u>	Distance From Source*	Contam. Aquifer**	Level I Contam. (Y/N)	Level II Contam. (Y/N)	Potential Contam.	Reference***
FS-2	2.04 miles	UPGL/MAG	N	N	Y	21, pp. 2,
GP-11	2.04 miles	UPGL/MAG	N	N	Y	16 21, pp. 2, 19, fig. 1
WH-7	2.06 miles	UPGL/MAG	N	N	Y	21, pp. 6,
CP-2	2.11 miles	UPGL/MAG	N	N	Y	21, pp. 2, 15
WN-9	2.12 miles	UPGL/MAG	N	N	Y	21, pp. 5, 6, 57, 58
GP-8	2.17 miles	UPGL/MAG	N	N	Y	21, pp. 2, 19, fig. 1
HV-4	2.17 miles	UPGL/MAG	N	N	Y	21, pp. 3, 41
HV-5	2.17 miles	UPGL/MAG	N	N	Y	21, pp. 3, 41
HV-6	2.17 miles	UPGL/MAG	N	N	Y	21, pp. 3, 41
WN-40	2.22 miles	UPGL/MAG	N	N	Y	21, pp. 5, 55, 57
WN-40A ML-23	2.22 miles 2.23 miles	UPGL/MAG	N N	N N	Y Y	21, pp. 5, 55, 57
ML-23	2.28 miles	UPGL/MAG UPGL/MAG	N	N	Y	21, pp. 4, 45, 47 21, pp. 3,
HV-1R	2.34 miles	UPGL/MAG	N	N	Y	21, pp. 3, 41 21, pp. 3,
A-3	2.35 miles	UPGL/MAG	N	N	Y	41 21, pp. 1,
WN-35	2.38 miles	UPGL/MAG	N	N	Y	11, 14 21, pp. 5,
WN-35A	2.44 miles	UPGL/MAG	N	N	Y	6, 57, 58 21, pp. 5,
A-1	2.45 miles	UPGL/MAG	N	N	Y	6, 57, 58 21, pp. 1,
A-2	2.45 miles	UPGL/MAG	N	N	Y	11, 14 21, pp. 1,
HV-2	2.49 miles	UPGL/MAG	N	N	Y	11, 14 21, pp. 3,
HV-3	2.49 miles	UPGL/MAG	N	N	Y	41 21, pp. 3, 41
U-5	2.59 miles	UPGL/MAG	N	N	Y	21, pp. 3,
U-6	2.59 miles	UPGL/MAG	N	N	Y	21, pp. 3, 40

<u>Well</u>	Distance From Source*	Contam. Aquifer**	Level I Contam.	Level II Contam.	Potential Contam.	Reference***
CP-3	2.66 miles	UPGL/MAG	N	N	Y	21, pp. 2,
CP-4	2.66 miles	UPGL/MAG	N	N	Y	15 21, pp. 2, 15
RF-7	2.66 miles	UPGL/MAG	N	N	Y	21, pp. 3,
A-5	2.70 miles	UPGL/MAG	N	N	Y	21, pp. 1, 11, 14
ML-26	2.72 miles	UPGL/MAG	N	N	Y	21, pp. 4, 45, 47
CP-5	2.79 miles	UPGL/MAG	N	N	Y	21, pp. 2, 15
A-4	2.80 miles	UPGL/MAG	N	N	Y	21, pp. 1, 11, 14
ML-12	2.84 miles	UPGL/MAG	N	N	Y	21, pp. 4, 45, 47
ML-47	2.84 miles	UPGL/MAG	N	N	Y	21, pp. 4, 45, 47
FS-4	2.88 miles	UPGL/MAG	N	N	Y	21, pp. 2, 16
FS-5	2.88 miles	UPGL/MAG	N	N	Y	21, pp. 2, 16
ML-6	2.99 miles	UPGL/MAG	N	N	Y	21, pp. 4, 45, 47
HV-7	3.08 miles	UPGL/MAG	N	N	Y	21, pp. 3, 41
HV-9	3.08 miles	UPGL/MAG	N	N	Y	21, pp. 3, 41
WH-2A	3.10 miles	UPGL/MAG	N	N	Y	21, pp. 6, 59
WH-6	3.10 miles	UPGL/MAG	N	N	Y	21, pp. 6, 59
WH-9	3.10 miles	UPGL/MAG	N	N	Y	21, pp. 6, 59
WH-10	3.10 miles	UPGL/MAG	N	N	Y	21, pp. 6, 59
WN-44	3.17 miles	UPGL/MAG	N	N	Y	21, pp. 5, 6, 57, 58
WN-44B	3.17 miles	UPGL/MAG	N	N	Y	21, pp. 5, 6, 57, 58
FS-3	3.20 miles	UPGL/MAG	N	N	Υ	21, pp. 2, 16
WN-44A	3.21 miles	UPGL/MAG	N	N	Y	21, pp. 5, 6, 57, 58
WN-44C	3.21 miles	UPGL/MAG	N	N	Y	21, pp. 5, 6, 57, 58

<u>Well</u>	Distance From Source*	Contam. <u>Aquifer**</u>	Level I Contam. (Y/N)	Level II Contam. (Y/N)	Potential Contam.	Reference***
ML-27	3.28 miles	UPGL/MAG	N	N	Y	21, pp. 4,
R-2	3.32 miles	UPGL/MAG	N	N	Y	45, 47 21, pp. 5,
K-2	3.32 miles	OPGL/MAG	IN	IN	1	51, 52
W-6	3.43 miles	UPGL/MAG	N	N	Y	21, pp. 6, 60
W-7A	3.43 miles	UPGL/MAG	N	N	Y	21, pp. 6,
RF-11	3.46 miles	UPGL/MAG	N	N	Y	21, pp. 3, 38
W-11	3.46 miles	UPGL/MAG	N	N	Y	21, pp. 6,
W-15	3.47 miles	UPGL/MAG	N	N	Y	21, pp. 6,
R-4	3.53 miles	UPGL/MAG	N	N	Y	60 21, pp. 5, 51, 52
LI-3-1	3.61 miles	UPGL/MAG	N	N	Y	21, pp. 3,
LI-3-2	3.61 miles	UPGL/MAG	N	N	Y	42 21, pp. 3, 42
ML-5T	3.62 miles	UPGL/MAG	N	N	Y	21, pp. 4,
ML-6T	3.74 miles	UPGL/MAG	N	N	Y	45, 47 21, pp. 4,
ML-25	3.74 miles	UPGL/MAG	N	N	Y	45, 47 21, pp. 4,
		01 017 1110			-	45, 47
WN-15A	3.80 miles	UPGL/MAG	N	N	Y	21, pp. 5, 55, 57
WN-15B	3.80 miles	UPGL/MAG	N	N	Y	21, pp. 5,
WN-30	3.82 miles	UPGL/MAG	N	N	Y	55, 57 21, pp. 5,
.n. 150	2 00 '1					6, 57, 58
WN-15C	3.87 miles	UPGL/MAG	N	N	Y	21, pp. 5, 55, 57
WN-15E	3.87 miles	UPGL/MAG	N	N	Y	21, pp. 5,
W-17	3.90 miles	UPGL/MAG	N	N	Y	55, 57 21, pp. 6,
		01 01, 1110				60
R-3	3.92 miles	UPGL/MAG	N	N	Y	21, pp. 5, 51, 52
R-8	3.93 miles	UPGL/MAG	N	N	Y	21, pp. 5,
RC-5	3.94 miles	UPGL/MAG	N	N	Y	51, 52 21, pp. 4,
		- ,				50
RC-6	3.94 miles	UPGL/MAG	N	N	Y	21, pp. 4, 50

<u>Well</u>	Distance From Source*	Contam. Aquifer**	Level I Contam. (Y/N)	Level II Contam.	Potential Contam.	Reference***
RC-13	3.94 miles	UPGL/MAG	N	N	Y	21, pp. 4,
LI-18-1	3.95 miles	UPGL/MAG	N	N	Y	21, pp. 3,
LI-18-2	3.95 miles	UPGL/MAG	N	N	Y	21, pp. 3,

^{*} Distances are based on the distance of each well from the Jackson Steel facility.

^{**} UPGL/MAG = Upper Glacial and Magothy aquifers (i.e., aquifer of concern)

^{***} Well locations are plotted and presented in Reference 21; Figure 3

3.3.1 Nearest Well

Well: Mineola Village Water District Well No. 4 (M-4)

Mineola Village Water District Well No. 4~(M-4) is evaluated as the nearest well. This well is located approximately 1,670 feet (0.32 mile) east-southeast of the Jackson Steel site (see Figure 3); therefore, a nearest well value of 18 is assigned.

Level of Contamination (I, II, or potential): potential

(Ref. 1, p. 51603; 21, pp. 1 through 7, 49, 82; Figure 3)

Nearest Well Factor Value: 18

3.3.2 <u>Population</u>

3.3.2.2 Level I Concentrations

<u>Level I Well</u>	<u>Population</u>	<u>Reference</u>
Not Applicable (N/A)	N/A	N/A

3.3.2.3 Level II Concentrations

Level II Well	<u>Population</u>	<u>Reference</u>
Not Applicable (N/A)	N/A	N/A

3.3.2.4 Potential Contamination

Sixteen public/municipal water systems currently operate supply wells within 4 miles of the Jackson Steel site (Ref. 21, p. 1). Public supply wells listed below are located within the site's 4-mile vicinity and draw from the aquifer of concern (i.e., the Upper Glacial/Magothy aquifers). None of the wells within each respective system serves over 40 percent of its system's capacity (Ref. 21, pp. 10, 13, 15, 16, 19, 33 through 36, 38, 39, 41, 42, 45, 49, 50, 51, 55, 58 through 61).

Distance <u>Category</u>	Total GW Population	Potential <u>Population</u>	Distance-Weighted <u>Population Value</u>
0 to $\frac{1}{4}$ mile	0	0	0
>¼ to ½ mile	6,998	6,998	3,233
>½ to 1 mile	13,996	13,996	5,224
>1 to 2 miles	47,384	47,384	9,358
>2 to 3 miles	130,915	130,915	21,222
>3 to 4 miles	122,320	122,320	13,060

Sum of Distance-Weighted Population Values: 52,097

Ref. 1, p. 51604; 21, pp. 1 through 8, Table 1

Potential Contamination Factor Value = Distance-weighted population \times 0.1 Potential Contamination Factor Value = $52,097 \times 0.1 = 5,209.7$

Ref. 1, pp. 51603, 51604

3.3.3 Resources

No resource wells have been identified within a 4-mile radius of the Jackson Steel site.

3.3.4 Wellhead Protection Area

The deep flow recharge areas of the Magothy and Lloyd Aquifers have been designated as Wellhead Protection Areas on Long Island (Ref. 22, pp. 1, 2, 7, 9). The Jackson Steel site is located within the boundaries of the deep recharge zone (Ref. 22, pp, 1, 13 through 15; Figure 3). Since the source has a ground water containment factor value greater than 0 (Documentation Record, Section 3.1.2.1) and the site is located within a designated Wellhead Protection Area, a Wellhead Protection Area Factor Value of 20 is assigned (Ref. 1, p. 51604)

A copy of Figures 1, 2, and 3 is available at the EPA Headquarters Superfund Docket:

U.S. CERCLA Docket Office Crystal Gateway #1, 1st Floor 1235 Jefferson Davis Highway Arlington, VA 22202

Telephone: (703) 603-8917

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